EASTERN RESEARCH GROUP, INC.

M E M O R A N D U M

TO: George Smith, U.S. Environmental Protection Agency

FROM: Chad White, Eastern Research Group

DATE: November 24, 1997

SUBJECT: Final Summary of July 15, 1997, Incinerator Work Group Meeting

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1.0 INTRODUCTION AND PURPOSE OF MEETING

The July 15 meeting was the ninth meeting of the Incinerator Work Group for the Industrial Combustion Coordinated Rulemaking (ICCR). The major goals of this meeting were to finalize the scoping report to present at the July Coordinating Committee meeting, provide updates of subteams' progress on review of the database and any conclusions drawn to date, and make arrangements for immediate transmittal of the Work Group status report to the Coordinating Committee.

2.0 LOCATION AND DATE

This Work Group meeting was held from 9:00 am until 4:00 pm on July 15, 1997, at the U.S. EPA's Environmental Research Center Annex in Research Triangle Park, North Carolina. A copy of the draft meeting agenda is included as attachment 1.

3.0 ATTENDERS

The Incinerator Work Group meeting was open to the public. Participants at the meeting included representatives of the EPA, industry, State and local governments, and the environmental community. A copy of the attendance list for the meeting is included as attachment 2.

4.0 DISCUSSION

After brief introductions, the Work Group received updates about the ICWI litigation, the anticipated formation of an ad hoc group to develop a definition of "solid waste," the July Coordinating Committee meeting, and software accessibility for files posted to the TTN. The Work Group then reviewed and discussed the Work Group presentation and scoping recommendations to be presented to the Coordinating Committee at its July 22 and 23 meeting. In addition, the Work Group received status reports from the subteams as well as presentations on landfill gas emission data and an overview of the database review guidance issued by the Coordinating Committee. These topics are summarized in the sections that follow.

4.1 General Updates

Updates were provided about several issues, including the progress in defining solid waste, the information collection request, the information exchange meetings at the last Coordinating Committee Meeting, and upcoming Coordinating Committee meetings.

4.1.1 ICWI Litigation

Leslye Fraser of EPA provided an update on the ICWI litigation. Legal details associated with the court case have not been finalized, but the litigants have agreed to a revised ICWI schedule with the following milestones:

- October 1997: enter data from the ICCR survey into the ICCR database;
- November 1998: describe the regulatory options for ICWI (a "white paper"); and
- November 2000: promulgate the ICWI regulation.

Ms. Fraser noted that EPA is committed to meeting these milestones and that, for EPA to consider recommendations from the ICCR for the ICWI regulations, the Work Group must meet this schedule. Ms. Fraser encouraged the Work Group to strive to do so.

4.1.2 Solid Waste Definition Subgroup

At its May 1997 meeting, the Coordinating Committee formed a Solid Waste Subgroup, which was charged to prepare a proposal for addressing the definition of "solid waste" in the ICCR. At this meeting Jeff Shumaker, a member of the Solid Waste Subgroup, updated the Work

Group on the subgroup's progress. The subgroup decided to recommend that the Coordinating Committee form a "Solid Waste Definition Subgroup," which would develop a definition of "solid waste" that can be used under section 129 of the Clean Air Act. The subgroup recommended that this "Solid Waste Definition Subgroup," which would consist of a representative group of ICCR stakeholders who have concerns about the definition of "solid waste," begin its work by examining definitions in the Solid Waste Disposal Act (SWDA). In development of a definition of "solid waste," the subgroup would be authorized to deviate from the SWDA where there is a clear, defensible reason for doing so. If possible, the subgroup would complete its work by the September Coordinating Committee meeting or, at the latest, by the November Coordinating Committee meeting.

In anticipation of Coordinating Committee acceptance of this recommendation, the Work Group nominated the following members to participate on a Solid Waste Definition Subgroup:

- Jeff Shumaker of International Paper, representing the American Forest and Paper Association and the Council of Industrial Boiler Owners (a generator and burner of non-fossil materials as well as a possible representative of small business);

- Dave Maddox of Stanley Furniture Company, representing the American Furniture Manufacturers Association (a generator and burner of non-fossil materials as well as a representative of small business);

- Dick Van Frank of Van Frank Associates, representing the Amos W. Butler Chapter of the Audubon Society and the Save the Dunes Council (environmental interests); and

- John Ramsey of the Kansas Department of Health and Environment, representing STAPPA/ALAPCO (State/local government), pending confirmation of his interest and availability by Norman Morrow.

The Work Group also formed a support group to assist these nominees in representing the full breadth of the Incinerator Work Group. The following members volunteered to be part of this support group: Ed Repa, Tom Tyler, Beth Berglund, Tony Licata, George Parris, Bill Perdue, and Wayne Elliott.

4.1.3 Coordinating Committee Meetings

John Huyler reminded the Work Group of the next Coordinating Committee Meeting on July 22 and 23 in Long Beach, California. Mr. Huyler noted the importance of the meeting, since representatives of this Work Group will be presenting the Coordinating Committee with scoping recommendations for the incinerator source category. Work Group members were encouraged to obtain a copy of the meeting agenda from the TTN.

4.1.4 Software Accessibility for TTN Files

Dick Van Frank noted that the change in the EPA software standard for TTN files from WordPerfect 5.1 to WordPerfect 6.1 has prevented him from being able to access TTN files. Fred Porter acknowledged this concern and explained that, for ICCR participants without WordPerfect 6.1, EPA is promoting use of Adobe Acrobat to read and print TTN documents. The EPA plans to host a seminar about this topic at the July Coordinating Committee meeting.

4.2 Review of Draft Status Report and Scoping Recommendations to the Coordinating Committee

The Work Group discussed and reviewed separately the Incinerator Work Group Presentation outline, the Subteam 2 scoping recommendations, and the Subteam 4 scoping recommendations. Discussion of these documents is summarized in the sections that follow.

4.2.1 Incinerator Work Group Presentation

Norman Morrow reviewed the draft Incinerator Work Group Presentation. A copy of the draft presentation material is included in attachment 3. Mr. Morrow pointed out that the three questions under the description of the prioritization process are critical to determining the proper handling of an incinerator in the ICCR. If all of these questions are answered in the negative (i.e., an incinerator need not be considered for regulation under sections 129, 112, or 111), then that incinerator is not a focus of the Incinerator Work Group's attention.

Beth Berglund asked whether answering the questions in the affirmative meant that the Work Group would be considering the incinerators for regulation or just collecting more information. Mr. Morrow responded the intention of these review steps is to prioritize incinerators for consideration within the ICCR, not determine which incinerators will be considered for regulation.

Dick Van Frank suggested that the use of the word "significant" is too vague and may be a source of confusion and different interpretations. Considering this comment, the Work Group decided to clarify use of this word with a footnote stating the Work Group has not yet determined a working definition of "significant."

Ed Repa asked whether the word "unregulated" refers to the lack of State regulations, Federal regulations, or both. Norman Morrow responded that this term, like the word "significant," does not yet have a working definition. Mr. Morrow suggested that the subteams should determine later whether a source is "unregulated."

After this review and discussion the Work Group approved, with amendments, the draft presentation for the July 22 and 23 Coordinating Committee meeting presented by Norman Morrow. A copy of the revised presentation is available in attachment 4.

4.2.2 Subteam 2 Scoping Recommendations

Norman Morrow reviewed the scoping recommendations presented by Subteam 2.

Mr. Morrow explained that, because flares burn only uncontained gases, they are exempt from consideration under section 129. He also explained that flares are not usually operated continuously and, therefore, are not believed to be a significant source of HAPs. He pointed out that, where continuous combustion of byproduct gas is necessary, the gas is likely to burned in a boiler, engine, or other combustion device to recover energy. As a result, Subteam 2 recommends that flares be excluded from consideration under section 112. Subteam 2 also recommended that flares be assigned a lower priority for consideration under section 111. Because flares already have operating requirements in the general provisions of EPA's New Source Performance Standards (i.e., 40 CFR 60.18), Subteam 2 recommended that they be given a lower ICCR priority. A copy of the draft scoping recommendation containing these arguments is included in attachment 3.

After this review and discussion, the Work Group approved, with amendments, the draft scoping report presented by Subteam 2. A copy of the revised Subteam 2 Scoping recommendation is included in attachment 4.

4.2.3 Subteam 4 Scoping Recommendations

Andy Roth reviewed the scoping recommendations presented by Subteam 4. Mr. Roth noted that a vast majority of the glass- and rubber-burning combustion devices in the ICCR database are actually ICCR boilers. For this reason, Subteam 4 has not prepared a scoping recommendation for glass- or rubber-burning incinerators. A copy of the draft scoping recommendation is included in attachment 5.

Several members of the Work Group asked whether EPA has examined emissions from metal-burning incinerators. Fred Porter responded that the Metals Group in the Emission Standards Division of EPA's Office of Air Quality Planning and Standards has conducted a cursory review of the HAPs emitted from metal-burning incinerators. In light of this comment, several Work Group members questioned whether these combustion devices should be investigated in the ICCR if EPA has already begun reviewing them. Beth Berglund pointed out that copper recovery devices have been investigated and listed as a source of section 112(c)(6) pollutants in a June 20, 1997, Federal Register notice (62 FR 33625). After considering these comments and acknowledging a general lack of information about copper recovery units, the Work Group decided to collect additional information on these combustion devices before making a decision about their regulatory development prioritization for the ICCR.

After this review and discussion, the Work Group approved, with amendments, the draft scoping report presented by Subteam 4. A copy of the revised Subteam 4 Scoping recommendation is included in attachment 4.

4.3 Subteam Status Reports

At its March 11 meeting the Incinerator Work Group formed subteams to examine the incinerators in the ICCR database in a line-by-line fashion. These subteams were tasked to check the quality and accuracy of data in the database and to group incinerators into potential subcategories for analysis and regulation. At this meeting each subteam provided a progress report to the Work Group after meeting individually.

In light of the revised ICWI deadlines, Norman Morrow encouraged the subteams to complete the following tasks on schedule: determine coverage of incinerators under sections 129, 112, and 111; identify data gaps; and develop subcategory recommendations.

4.3.1 Subteam 1 Status Report

Dale Walter provided an update on Subteam 1's progress. Subteam 1 has sorted the database and has noted that there are many incinerators that appear to be duplicates but are reported as burning different materials (e.g., an incinerator at the same company reported as burning commercial solid waste in one record and as burning pathological waste in another). The subteam hopes that the data from the ICCR survey will help to clarify these incinerator waste streams and allow the subteam to identify duplicate records for the same incinerator. Subteam 1 has also found that the distribution of incinerators in the database for human and animal crematories is fairly good. However, the subteam has noted that there is a lack of information about animal crematories at agricultural facilities. The subteam plans to contact vendors of combustion equipment to try to fill this data gap. In summary, Mr. Walter stated that Subteam 1 has not yet begun to examine any section 129 applicability or issues.

Fred Porter pointed out that Subteam 1 may face issues of definition overlap among pathological, pharmaceutical, and medical wastes. Mr. Porter suggested that Subteam 1 discuss definitional overlap with EPA to examine how these issues where handled during development of standards for medical waste incinerators.

4.3.2 Subteam 2 Status Report

Bob Morris provided an update on Subteam 2's progress. Subteam 2 has cross-checked their database incinerator records' source classification codes (SCCs) with standard industrial classifications (SICs) for the petroleum and chemical industry. The subteam found only a twenty-six percent match and noted that additional review of these incinerator records may be necessary. Mr. Morris also reported that Subteam 2 plans to begin review of the emission database at its next meeting.

4.3.3 Subteam 3 Status Report

Dave Maddox provided an update on Subteam 3's progress. Mr. Maddox reported that the subteam has not completed its review of the inventory database. However, the American Furniture Manufacturers Association (AFMA) has agreed to provide staff and support to Subteam 3 to help complete its review of the inventory database soon. Mr. Maddox also commented that the subteam expects to find that many of the wood- and wood products-burning combustion devices in the incinerator database are actually ICCR boilers or process heaters.

4.3.4 Subteam 4 Status Report

Subteam 4 had no additional progress to report beyond its scoping recommendations (see section 4.2.3).

4.3.5 Subteam 5 Status Report

George Smith provided an update on Subteam 5's progress. Subteam 5 has completed initial review of the database. The subteam is now beginning a data quality assurance review and has begun to identify data gaps. These activities are being conducted to help the subteam develop subcategories and, ultimately, model plants. In many cases, the subteam has found that the data in the database is incomplete or of poor quality. The subteam expects that these concerns will be addressed by the ICCR survey.

4.4 Presentation on Landfill Gas Emission Data

Ed Wheless of the Los Angeles County Sanitation District presented data on landfill gas emissions. The purpose of this presentation was to show the percentage contribution to landfill HAP emissions from landfill gas combustion. Copies of the material used in this presentation are included as attachment 6. At the conclusion of his presentation, Mr. Wheless recommended that flaring of landfill gas be investigated during the development of the Municipal Landfill MACT and not as part of the ICCR.

Jeff Shumaker asked whether landfill gas stream concentrations have been measured upstream of the flare. Mr. Wheless responded that measurements have been taken for organic compounds only.

Fred Porter commented that the “temperature window” for dioxin formation in a flare is very small and, therefore, that any dioxin emissions from flares pose a relatively low health risk. Mr. Porter suggested that landfill gas flares be assigned a lower ICCR priority. Tony Licata added that it is unlikely that dioxins would be present in landfill gas flare inlet streams but suggested that dioxins could be formed during combustion in some flares. In response, David Marrack suggested that, because there is some dioxin formation, landfill gas flares should be considered in the ICCR.

After this discussion, the Work Group decided that additional debate about the ICCR priority for landfill gas flares should be postponed until Work Group members have had time to consider the landfill gas data.

4.5 Presentation on Overview of Database Review Guidance

Rick Crume of EPA presented an overview of the database review guidance from the Coordinating Committee to the Work Groups. Copies of the materials from this presentation are included as attachment 7. All Work Group members were encouraged to review the guidance, which has been posted on the TTN, prior to the July 30 Work Group teleconference.

In response to the guidance issued to the Work Groups, Andy Roth expressed concern about his perception of the Coordinating Committee expectation for comprehensive database review. Mr. Roth suggested that review and quality assurance of the database should be performed only insofar as it supports regulatory development for the ICCR.

5.0 ACTION ITEMS

The following action items are to be conducted by the next Work Group meeting:

- ERG will report back to the Work Group on the inclusion of the emission database incinerators in the inventory database and the availability of a cross-reference between the databases.

- Each Work Group member is encouraged to review by the July 30 Work Group teleconference the database review guidance issued to the Work Group by the Coordinating Committee.

6.0 NEXT MEETINGS

The Work Group decided to retain its meetings schedule as follows:

- July 30: Teleconference in response to the July 22/23 Coordinating Committee meeting; 11am - 2pm EDT,
(919-541-4486)

- September 3: Teleconference prior to September Coordinating Committee meeting; 11am - 4pm EDT, (919-541-4486)

- September 18: Work Group meeting in Research Triangle Park, North Carolina (to follow the Coordinating Committee meeting on September 16 and 17)

- November 20: Work Group meeting tentatively scheduled for Houston, Texas (to follow the Coordinating Committee meeting on November 18 and 19)

These minutes represent an accurate description of matters discussed and conclusions reached and include a copy of all reports received, issued, or approved at the July 15, 1997, meeting of the Incinerator Work Group. George Smith, EPA Co-chair.

ATTACHMENTS

Attachment 1: Draft Meeting Agenda

Attachment 2: Meeting Attenders

Attachment 3: Draft Incinerator Work Group Presentation and Subteam 2 Scoping Recommendation

Attachment 4: Draft Subteam 4 Scoping Recommendation

Attachment 5: Revised Incinerator Work Group Presentation and Subteam Scoping Recommendations

Attachment 6: Landfill Gas Data Presentation

Attachment 7: Database Review Guidance Presentation

ATTACHMENT 1

Draft Meeting Agenda

INCINERATOR WORK GROUP MEETING
July 15, 1997; 9am-4pm EDT
EPA's Environmental Research Center Annex, APTI Classroom;
Research Triangle Park, North Carolina

MAJOR MEETING GOALS

- Finalize scoping report to present at the July Coordinating Committee meeting.
- Provide updates of subteams' progress on review of database and any conclusions drawn to date.
- Make arrangements for immediate transmittal of the Work Group status report to the Coordinating Committee

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8:00-8:45am Optional Subteam Huddle (in ERC Annex Cafeteria)

9:00-9:20am CONVENE (G. Smith)
WELCOME AND INTRODUCTIONS (J. Huyler)
- REVIEW OF MEETING GOALS (N. Morrow)
- REVIEW OF MEETING AGENDA (G. Smith)

9:20-9:30am UPDATES
- July CC meeting (J. Huyler)
- ICWI Litigation (L. Fraser)
- Other updates (Work Group member input)

9:30-10:30am Review of Draft Scoping Report to the CC (N. Morrow)

10:30-10:40am Break

10:40-11:40am Review and Discuss Work Group Comments on the Draft Scoping Report

11:40-12:40pm Lunch

Draft Meeting Agenda (Continued)

12:40-1:40pm Subteam Status Reports
- Subteam 1 (P. Rahill)
- Subteam 2 (B. Morris)
- Subteam 3 (D. Marietta)
- Subteam 4 (A. Roth)
- Subteam 5 (G. Smith)
- Discussion of subteam progress/effectiveness

1:40-2:00pm Review of Guidance for Inventory and Emission Database Review

2:00-2:20pm Landfill Gas Flare Status Report
(G. Smith, D. VanFrank, E. Repa, E. Wheless)

2:20-2:30pm Break

2:30-3:10pm Presentation to Work Group of the Final Draft of the Scoping Report (dry run of presentation to CC)

3:10-3:35pm Final Work Group Comments on and Changes to the Scoping Report

3:35-3:45pm Final Arrangements for Transmitting the Status Report to the CC (within 24 hours)

3:45-3:50pm Next Meetings Reminder
- July 30: Conf. Call, 11am-2pm EDT (919-541-4486)
- Sept 3: Conf. Call, 11am-4pm EDT (919-541-4486)
- Sept 18: Research Triangle Park, NC
- Sept 18 or 19: tour of incinerators at Glaxo Wellcome (tentative)
- November 20: Houston, TX (tentative)

3:50-4:00pm Flash Minutes Review

4:00pm CLOSE (G. Smith)

ATTACHMENT 2

Meeting Attenders

Meeting Attenders

Name	Affiliation
Beth Berglund	Merck
Wayne Elliott	Central Georgia Ancillary Health Systems
Larry Faith	Shell Development Company
Leslye Fraser	U.S. EPA/OGC
John Huyler	The Keystone Center
Richard Crume	U.S. EPA/OGC
Tony Licata	Licata Energy and Environmental Consultants
Dave Maddox	Stanley Furniture Company
David Marrack	Galveston-Houston Assoc. for Smog Prevention
Doris Maxwell	U.S. EPA/OAQPS
Norman Morrow	Exxon Chemical Americas
Bob Morris	The Coastal Corporation
Bill Perdue	Pulaski Furniture Corporation
Fred Porter	U.S. EPA/OAQPS
Susan Radomski	Eastern Research Group, Inc.
Ed Repa	National Solid Waste Management Association
Andrew Roth	Regional Air Pollution Control Agency (Dayton, Ohio)
Kay Rykowski	Stillwater Technologies
Jeff Shumaker	International Paper
George Smith	U.S. EPA/OAQPS
Tom Tyler	Institute of Scrap Recycling Industries
Dick Van Frank	National Audubon Society
Tom Waddell	Eastern Research Group, Inc.
Dale Walter	Industrial Engineering and Equipment Company
Ed Wheless	Los Angeles County Sanitation District
Chad White	Eastern Research Group, Inc.
Bill Wiley	Consumat Systems, Inc.

ATTACHMENT 3

Draft Incinerator Work Group Presentation and Subteam 2
Scoping Recommendation

Incinerator Work Group Presentation
July Coordinating Committee
Presented by N. L. Morrow

Introduction

Like most of the ICCR work groups, the incinerator workgroup (IWG) has been evaluating available information for the purpose of establishing which groups of sources should be the focus of attention. While our understanding of the entire incinerator category is incomplete, we have reached agreement on two groups and are asking for concurrence of the Coordinating Committee (CC) with those conclusions. Other groups of incinerators continue to be evaluated and recommendations relative to them will be brought forward to future CC meetings.

Scope

The IWG is considering all sources which are not boilers, process heaters, turbines, or internal combustion engines. Efforts continue to specifically identify the boundaries between incinerators, boilers and process heaters, but a complete understanding of those boundaries at this time is unnecessary for identifying groups of sources that should or should not be a focus of IWG attention.

To address the broad range of incinerators within the IWG scope, we have established five subteams. These teams are:

Subteam 1	Pathological, Crematory, Pharmaceutical
Subteam 2	Petroleum, Chemicals, Off-gas; Industrial Sludge; Soils
Subteam 3	Wood, including pulp & paper; Wood products; Ovens
Subteam 4	Metals; Rubber; Burnoff Incinerators (e.g. steel, glass)
Subteam 5	Small MWC, Landfill Gas Flares, Fiberglass; Agricultural, Concrete, other

In addition, the IWG has been working to better define which incinerators would be subject to Section 129 rulemaking, since this decision is inextricably tied to the prioritization decision. The IWG believes that sources which are ultimately concluded

to be subject to Section 129 must be addressed via rule development and thus will be a focus of workgroup effort.

Prioritization Process

While the “incinerator” category contains fewer sources than boilers or process heaters, the wide diversity of incinerator types, section 129 applicability to all size devices and the lack of readily available information makes meeting the ICCR schedule, with defensible and well done regulations, a major challenge. In order to assure that those incinerators which must be addressed because of the requirements of the Clean Air Act and those which should be addressed to achieve the maximum benefit, prioritization is critical. In distinguishing which incinerator types should be given priority attention, the IWG asks the following questions:

1. Is this incinerator type subject to Section 129?
2. Does it include significant unregulated combustion sources of HAP, thereby justifying development of a Section 112 standard?
3. Does it include significant unregulated combustion sources of criteria pollutants, thereby justifying development of a Section 111 standard?

The IWG believes equipment types for which the answer to all three questions is no should not be a focus of attention by the workgroup. Implicit in the second and third questions is the assumption that combustion sources which have already been addressed by Section 111 and 112 rulemakings or which the IWG believes are being adequately addressed in other rulemaking efforts should not be considered within the IWG scope. A combustion source is considered to have been or is being adequately addressed if combustion emissions were or will be specifically considered in development of another section 111 or 112 rule. Additionally, if we believe a type of incinerator would be better addressed in a non-ICCR rulemaking effort, we intend to communicate that recommendation to the CC and to EPA.

July CC Presentation

IWG Subteams 2 and 4 have developed prioritization recommendations for two incinerator groupings. The IWG concurs with the subteam positions and requests agreement from the CC with those recommendations. Prioritization is critical to progress and it is import that a decision be made so the IWG can focus its efforts and move forward.

Incinerator Workgroup (IWG)
Subteam 2
Presented by Anthony Licata

Recommendation: HAP emissions from halogenated (fluorine-, chlorine-, bromine- or iodine- containing) gas combustion should be the focus of IWG efforts on industrial gas combustion and criteria pollutant emissions and HAP emissions from combustion of non-halogenated industrial gas should not.

Background

Off-gas from food, petroleum, chemical, pharmaceutical, pulp and paper and other industrial process operations are sometimes incinerated in flares or "off-gas" combustion devices such as "thermal oxidizers", "fume incinerators" and "afterburners". The ICCR database includes approximately 2100 flares and _____ off-gas combustion devices. Table 1 provides a rough break down of the number of gas incineration devices in the ICCR database by type. Landfill gas flares are included in Table 1 for information, but are not considered “industrial” for the purposes of this recommendation. They are being addressed separately by Subteam 5.

[Fill in Table 1]

Industrial gas combustors are generally used to control emissions (normal and emergency) of hydrocarbons from process industries. With adequate combustion temperature, residence time and mixing, hydrocarbons are oxidized to carbon dioxide and water vapor. When used properly, total organic compound destruction will equal or exceed 98% (see references in Table 2). As a result, use of these devices is a common alternative in hydrocarbon control regulations. In general, these regulations, specify operating conditions and monitoring to assure the high level of destruction of which these devices are capable is achieved and, via Title V and the Compliance Assurance Monitoring rule, any monitoring gaps are being filled.

[Fill in Table 2]

Section 129

Section 129 applies to "solid waste" combustion. Since solid waste is defined to exclude gases (except gases which are in a container), Section 129 does not apply to industrial gas combustors.

Section 112

The combustion of non-halogenated gases generates very little HAP, as discussed in the Process Heater Workgroup [update when presenter of PERF data is finalized] presentation of the PERF data. If the BTU content of a gas is consistent and high and the volume is significant, the gas will be combusted in a boiler, process heater, turbine or internal combustion engine because the recoverable energy is too valuable to lose by incinerating the gas. Thus, on an annual average basis, industrial flares and off-gas combustion devices are generally used for intermittent (e.g. emergency) situations or as control devices for low volume or low heat capacity (hydrocarbon content) streams. As a result, combustion by-product HAP production from these devices is small. As indicated by other workgroups, even combustion of gaseous hydrocarbons as fuel does not generate major source quantities of HAP unless the continuous amount of hydrocarbon combusted is very large. Thus, the subteam and the IWG believe that industrial non-halogenated off-gas combustion is not a significant source of combustion HAP and that halogenated gas combustion should be the focus of IWG efforts on this type of device.

Section 111

As discussed in the Section 112 paragraph only smaller gas sources are combusted in gas incinerators for economic reasons. Thus, criteria pollutant generation is not believed to be significant and thus would not justify attention from the IWG.

Conclusion

The IWG and subteam 2 believe that criteria pollutant emissions and HAP emissions, if any, from the combustion of non-halogenated gas are of less concern than other incinerator emissions and therefore IWG effort relative to industrial gas combustion should focus on HAP emissions from halogenated gas combustion.

ATTACHMENT 4

Revised Incinerator Work Group
Presentation and Scoping Recommendation

Incinerator Work Group Presentation
July Coordinating Committee
Presented by N. L. Morrow

Introduction

Like most of the ICCR Work Groups, the incinerator Work Group (IWG) has been evaluating available information for the purpose of establishing which groups of sources should be the focus of attention. While our understanding of the entire incinerator category is incomplete, we have reached agreement on two groups and are asking for concurrence of the Coordinating Committee (CC) with those conclusions. Other groups of incinerators continue to be evaluated and recommendations relative to them will be brought forward to future CC meetings.

Scope

The IWG is considering all sources which are not boilers, process heaters, turbines, or internal combustion engines. Efforts continue to specifically identify the boundaries between incinerators, boilers and process heaters, but a complete understanding of those boundaries at this time is unnecessary for identifying groups of sources that should or should not be a focus of IWG attention.

To address the broad range of incinerators within the IWG scope, we have established five subteams. These teams are:

Subteam 1	Pathological; Crematory; Pharmaceutical
Subteam 2	Petroleum; Chemicals; Off-gas; Industrial Sludge; Soils
Subteam 3	Wood, including pulp & paper; Wood products; Ovens
Subteam 4	Metals; Rubber; Burnoff Incinerators (e.g. steel, glass)
Subteam 5	Small MWC; Landfill Gas Flares; Fiberglass; Agricultural; Concrete; other

In addition, the IWG has been working to better define which incinerators would be subject to Section 129 rulemaking, since this decision is inextricably tied to the prioritization decision. The IWG believes that sources which are ultimately concluded to be subject to Section 129 must be addressed via rule development and thus will be a focus of Work Group effort.

Prioritization Process

While the “incinerator” category contains fewer sources than boilers or process heaters, the wide diversity of incinerator types, section 129 applicability to all size devices and the lack of readily available information makes meeting the ICCR schedule, with defensible and well done regulations, a major challenge. In order to assure that those incinerators which must be addressed because of the requirements of the Clean Air Act and those which should be addressed to achieve the maximum

benefit, prioritization is critical. In distinguishing which incinerator types should be given priority attention, the IWG asks the following questions:

1. Is this incinerator type subject to Section 129?
2. Does it include significant,[1] unregulated combustion sources of HAP, thereby justifying development of a Section 112 standard?
3. Does it include significant, unregulated combustion sources of criteria pollutants, thereby justifying development of a Section 111 standard?

The IWG believes equipment types for which the answer to all three questions is "no" should not be a focus of attention by the Work Group. Implicit in the second and third questions is the assumption that combustion sources which have already been addressed by Section 111 and 112 rulemakings or which the IWG believes are being adequately addressed in other rulemaking efforts should not be considered within the IWG scope. A combustion source is considered to have been or is being adequately addressed if combustion emissions were or will be specifically considered in development of another section 111 or 112 rule. Additionally, if we believe a type of incinerator would be better addressed in a non-ICCR rulemaking effort, we intend to communicate that recommendation to the CC and to EPA.

July CC Presentation

IWG Subteams 2 and 4 have developed prioritization recommendations for two incinerator groupings. The IWG concurs with the subteam positions and requests agreement from the CC with those recommendations. Prioritization is critical to progress and it is import that a decision be made so the IWG can focus its efforts and move forward.

[1] The working definition of "significant" will be determined by the Work Group.

Incinerator Work Group (IWG)
Subteam 2: Chemicals, Petroleum, Off-gas, Soil Incineration
Presented by Anthony Licata

Recommendation:

Criteria pollutant and HAP emissions from combustion of non-halogenated industrial gas should not be a focus of IWG efforts. Collection of HAP emission data from halogenated (fluorine-, chlorine-, bromine- or iodine- containing) gas combustion will be the focus of IWG efforts on industrial gas combustion.

Background

Off-gas from food, petroleum, chemical, pharmaceutical, pulp and paper and other industrial process operations are sometimes incinerated in flares or "off-gas" combustion devices such as "thermal oxidizers", "fume incinerators" and "afterburners". The ICCR database includes approximately 2200 flares and 1400 off-gas combustion devices. Table 1 provides a rough break down of the number of gas incineration devices in the ICCR database by type. Landfill gas flares are included in Table 1 for information, but are not considered “industrial” for the purposes of this recommendation. They are being addressed separately by Subteam 5.

Table 1
Off-gas Combustion Devices in Incinerator Database

Category	Flares		Off-gas Incinerators	
	Count	Percent	Count	Percent
Natural Gas	1419	65	1117	78
Process Gas - Petroleum	356	16	64	5
Process Gas - Other	101	4	243	17
Landfill Gas	153	7	0	
Other Gas	170	8	0	
Total	2199	100	1424	100

Industrial gas combustors are generally used to control emissions (normal and emergency) of hydrocarbons from process industries. With adequate combustion temperature, residence time and mixing, hydrocarbons are oxidized to carbon dioxide and water vapor. When used properly, total organic compound destruction will equal or exceed 98% (see references in Table 2). As a result, use of these devices is a common alternative in hydrocarbon control regulations. In general, these regulations, specify operating conditions and monitoring to assure the high level of destruction of which these devices are capable is achieved and, via Title V and the Compliance Assurance Monitoring rule, any monitoring gaps are being filled.

Table 2
Selected Flare Destruction Efficiency References

Reference 1	"Flare Efficiency Study," U.S. EPA, U.S. EPA, EPA-600/2-83-052, July 1983
Reference 2	"Evaluation of the Efficiency of Flares: Test Results," U.S. EPA, EPA-600/2-84-095, May 1984
Reference 3	"Air Pollution Engineering Manual," Air and Waste Management Association, 1992

Section 129

Section 129 applies to "solid waste" combustion. Since solid waste is defined to exclude gases (except gases which are in a container), Section 129 does not apply to industrial gas combustors.

Section 112

The combustion of non-halogenated gases generates very little HAP, as discussed in the Process Heater Work Group presentation of the PERF data. If the BTU content of a gas is consistent and high and the volume is significant, the gas will be combusted in a boiler, process heater, turbine or internal combustion engine because the recoverable energy is too valuable to lose by incinerating the gas. Thus, on an annual average basis, industrial flares and off-gas combustion devices are generally used for intermittent (e.g. emergency) situations or as control devices for low volume or low heating value (hydrocarbon content) streams. As a result, combustion by-product HAP production from these devices is small. As indicated by other Work Groups, even combustion of gaseous hydrocarbons as fuel in non-incinerator devices does not generate major source quantities of HAP. Thus, the subteam and the IWG believe that industrial non-halogenated off-gas combustion is not a significant source of combustion HAP and that halogenated gas combustion should be the focus of IWG efforts on this type of device.

Section 111

As discussed in the Section 112 paragraph only smaller gas sources are combusted in flares or off-gas incinerators for economic reasons. Further, many classes of flares and off-gas incinerators are regulated or have been considered for regulation. Thus, criteria pollutant generation is not believed to be significant and would not justify attention from the IWG.

Conclusion

The IWG and Subteam 2 believe that criteria pollutant emissions and HAP emissions, if any, from the combustion of non-halogenated gas are of less concern than other incinerator emissions and therefore IWG data collection effort relative to industrial gas combustion will focus on HAP emissions from halogenated gas combustion.

Incinerator Work Group (IWG)
Subteam 4: Metals-, Rubber-, Glass-related Incineration
Presented by Andrew Roth

Description of Combustion Devices:

Metals-, rubber-, and glass-related incinerators are conceptual scoping terms used to encompass a wide variety of combustion devices. Subteam 4 has determined that most rubber- or glass-related combustion devices that were originally termed "incinerators" are in actuality boilers or glass melting furnaces, because they combust wastes with the primary purpose of producing steam or process heat.

Metals-related incinerators can be further categorized as burnoff units or materials recovery units. Materials recovery units are devices such as secondary smelters, precious metal recovery units, and scrap metal recovery units. These units combust waste in the process of recovering secondary metals; recovering metals is their primary purpose.

Burnoff units are used for **recovery of metal parts such as armatures, racks, and drums** by burning off either a combustible coating or residue (e.g. paint, PVC, degreaser sludge in drums) or any attached combustible pieces (e.g. rubber grommets, plastic inserts). The recovered metal parts are distinct from the metals produced by materials recovery units in that the metal parts retain value in their current form above the value of their metal content. Many of the burnoff units are batch-fed, natural gas-fired, and are equipped with secondary combustion chambers. The batch burnoff units usually are not equipped with any type of add-on air pollution control device such as a scrubber or a baghouse.

Scoping Recommendations:

As part of the Incinerator Work Group (IWG) of the ICCR, Subteam 4 intends to restrict its scope to incinerators, that is, combustion devices that are not boilers or process heaters as defined by the ICCR. As mentioned previously in this presentation, rubber- and glass-related combustion devices listed in the ICCR database were found to be either boilers or process heaters. Subteam 4 would be pleased to help the appropriate Work Groups identify these boilers and process heaters in the ICCR database, if requested.

Three sections of the Clean Air Act (Act) provide the regulatory framework for developing regulations for the Subteam 4 portion of the ICCR IWG charge: section 129, section 112, and section 111. This scoping document presents recommendations for metals-related incinerators under sections 129 and 112.

Section 129:

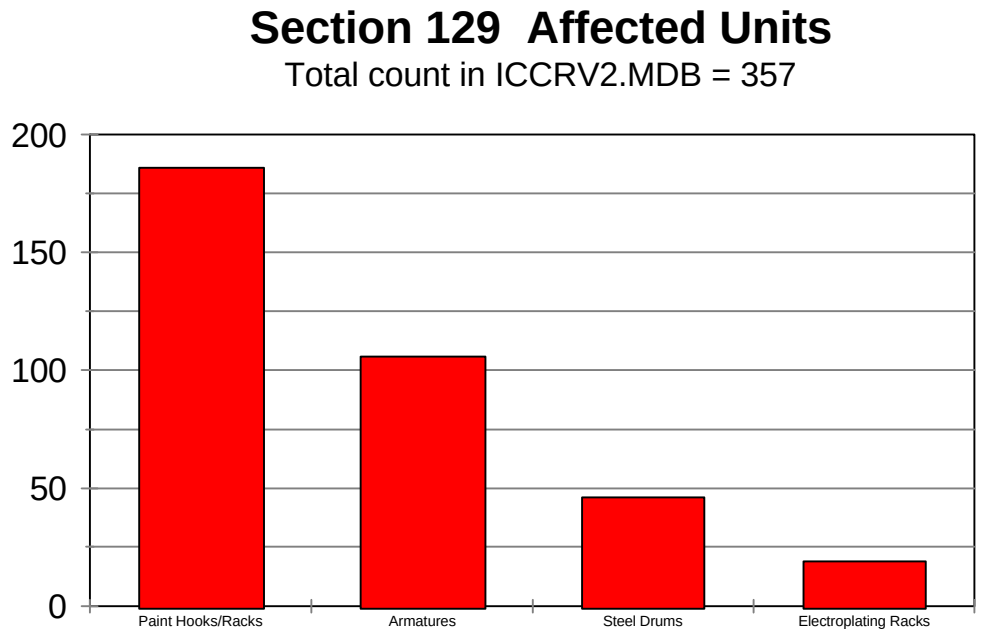
Section 129 of the Act applies to solid waste combustion. Subteam 4 believes that the combustible materials that are fed to metals-related incinerators can be classified as solid wastes and that many metals-related incinerators may be appropriately regulated under section 129.

Section 129(g)(1) of the Act contains a number of explicit exclusions from the definition of Solid Waste Incineration Unit and reads, in part, "**...The term 'solid waste incineration unit' does not include (A) materials recovery facilities (including primary or secondary smelters) which combust waste for the primary purpose of recovering metals,** (B)..." [bolding added] 42 U.S.C.A. §7429(g)(1) Subteam 4 understands this to mean that if the primary purpose of feeding the material

or item into the combustion unit is for recovery of its metal content, rather than for recovery in its current form or use, such combustion units are excluded from section 129.

Subteam 4 recommends that burnoff units, but not materials recovery units, be regulated under section 129. As discussed above, burnoff units are used for recovery of metal parts that have value above that of their metal content alone.

EPA is required under section 129 to regulate the following pollutants: particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, lead, mercury, cadmium, hydrogen chloride, and dioxins/furans. The constituents that may be present in the combustible materials fed to burnoff units include chlorine and various metals. Subteam 4 believes that emissions of some or all of the section 129 pollutants are likely to occur. Very little emissions data are believed to exist for burnoff units with the exception of total particulate matter. Therefore Subteam 4 intends to gather emissions data and develop a test plan for section 129 pollutants for burnoff units including armature burnoff units, paint hook/rack burnoff units, electroplating rack burnoff units, and steel drum burnout units.



This graph accounts for 357 of the 643 metals-related combustion units identified in the ICCRV2.MDB database.

Section 112:

This section of the Act dealing with MACT standards is the next area of focus for the materials recovery units that are excluded from section 129. The vast majority by weight of the materials recovered in these type of units are represented by four metals types: aluminum, copper, ferrous, and lead. Some of the source categories involved with recovery of those metals have been

recognized as significant sources of HAPs. Summarized below is the MACT regulatory status for materials recovery units:

- Secondary aluminum MACT - MACT under development. Early draft addresses emissions of PM, HCl, THC, dioxins/furans. Not clear whether for major HAP sources only.

- Secondary copper - Not listed as a MACT category. However, listed in the 1994 Dioxin Reassessment as a source of dioxins/furans. Source category may include scrap electric wire recovery units.

- Secondary ferrous metals - Not listed as a MACT category. However, suggested as a source of dioxins/furans in the 1994 Dioxin Reassessment.

- Secondary lead MACT - Promulgated May 31, 1994. Area source MACT addresses emissions of lead, HCl/Cl_2, THC for all secondary lead smelters.

Based on the information listed above, Subteam 4 recommends that no further work be done by the IWG on the secondary lead and secondary aluminum source categories. Subteam 4 intends to review EPA's work on the secondary copper, secondary ferrous, and secondary precious metal sources to date and, as needed, to gather and review emissions data for these source categories.

ATTACHMENT 5

Draft Subteam 4 Scoping Recommendation

Incinerator Workgroup (IWG)
Subteam 4: Metals-, Rubber-, and Glass-related Incinerators
Presented by Andrew Roth

Description of Combustion Devices:

Metals-, rubber-, and glass-related incinerators are conceptual scoping terms used to encompass a wide variety of combustion devices. Subteam 4 has determined that most rubber- or glass-related combustion devices that were originally termed "incinerators" are in actuality boilers or glass melting furnaces.

Metals-related incinerators can be further categorized as burnoff units or materials recovery units. Materials recovery units are devices such as secondary smelters, precious metal recovery units, and scrap metal recovery units. Combustible wastes are often fed to these units along with the metals to be recovered, however, the materials recovery units **combust these wastes for the primary purpose of recovering metals**.

Burnoff units are used for **recovery of metal parts such as armatures, racks, and drums** by burning off either a combustible coating or residue (e.g. paint, PVC, degreaser sludge in drums) or any attached combustible pieces (e.g. rubber grommets, plastic inserts). The recovered metal parts are distinct from the metals produced by materials recovery units in that the metal parts retain value in their current form above the value of their metal content. Many of the burnoff units are batch-fed, natural gas-fired, and are equipped with secondary combustion chambers. The batch burnoff units usually are not equipped with any type of add-on air pollution control device such as a scrubber or a baghouse.

Scoping Recommendations:

As part of the Incinerator Work Group (IWG) of the ICCR, subteam 4 intends to restrict its scope to incinerators, that is, combustion devices that are not boilers or process heaters as defined by the ICCR. As mentioned previously in this presentation, rubber- and glass-related combustion devices listed in the ICCR database were found to be either boilers or process heaters. Subteam 4 is prepared to identify the boilers or process heaters for the appropriate work groups, if requested.

Three sections of the Clean Air Act (Act) provide the regulatory framework for developing regulations for the subteam 4 portion of the ICCR IWG charge: section 129, section 112, and section 111. This scoping document presents recommendations for metals-related incinerators under sections 129 and 112.

Section 129:

Section 129 of the Act applies to solid waste combustion. Subteam 4 believes that the combustible materials that are fed to metals-related incinerators can be classified as solid wastes, and that many metals-related incinerators may be appropriately regulated under section 129.

Section 129(g)(1) of the Act contains a number of explicit exclusions from the definition of Solid Waste Incineration Unit and reads, in part, "**...The term 'solid waste incineration unit' does not include (A) materials recovery facilities (including primary or secondary smelters) which**

combust waste for the primary purpose of recovering metals, (B)..." [bolding added] 42 U.S.C.A. §7429(g)(1) Subteam 4 understands this to mean that if the material or item being fed into a combustion unit is valued primarily for its metal content, rather than for its current form or use, such combustion units are excluded from section 129.

Subteam 4 recommends that burnoff units, but not materials recovery units, be regulated under section 129. As discussed above, burnoff units are used for recovery of metal parts that have value above that of their metal content alone.

Listed section 129 pollutants are: particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, lead, mercury, cadmium, hydrogen chloride, and dioxins/furans. The constituents that may be present in the combustible materials fed to burnoff units include chlorine and various metals. Subteam 4 believes that emissions of some or all of the section 129 pollutants are likely to occur. Very little emissions data are believed to exist for burnoff units with the exception of total particulate matter. Therefore subteam 4 recommends that emissions measurements for all nine section 129 pollutants be performed on a representative sampling of burnoff units including armature burnoff units, paint hook/rack burnoff units, electroplating rack burnoff units, and steel drum burnout units, prior to proceeding with regulatory development under section 129.

Section 129 bar graph (attached)
This graph accounts for 357 of the 643 metals-related combustion units identified in the ICCRV2.MDB database.

Section 112:
This section of the Act dealing with MACT standards is the next area of focus for the materials recovery units that are excluded from section 129. The vast majority of the materials recovered in these type of units are represented by four metals: aluminum, copper, ferrous, and lead. Some of the source categories involved with recovery of those metals have been recognized as sources of HAPs. Listed below are the MACT standard statuses for the source categories of interest.

Secondary aluminum MACT - Presumptive MACT under development. Early draft addresses emissions of PM, HCl, THC, dioxins/furans. Not clear whether for major HAP sources only.

Secondary copper - Not listed as a MACT category. However, listed in the 1994 Dioxin Reassessment as a source of dioxins/furans. Source category may include scrap electric wire recovery units.

Secondary ferrous metals - Not listed as a MACT category. However, suggested as a source of dioxins/furans in the 1994 Dioxin Reassessment.

Secondary lead MACT - Promulgated May 31, 1994. Area source MACT addresses emissions of lead, HCl/Cl_2, THC for all secondary lead smelters.

Based on the information listed above, subteam 4 recommends that no further work be done on the secondary lead source category, and that the subteam provide assistance as needed to the secondary

aluminum PMACT process. Subteam 4 recommends that the ICCR consider regulatory development under section 112 for the secondary copper and secondary ferrous metal source categories. Subteam 4 notes that the secondary precious metal source category may also be appropriately regulated under section 112.

ATTACHMENT 6

Landfill Gas Data Presentation

The materials distributed in conjunction with this presentation are not available electronically. However, hard copies are available from the project docket.

ATTACHMENT 7

Database Review Guidance Presentation

The materials distributed in conjunction with this presentation are not available electronically. However, hard copies are available from the project docket.